Hardy Fern Foundation NEWSLETTER

Editor Sue Olsen ■ VOLUME 4 NUMBER 3 ■ SUMMER 1994

President's Report

SYLVIA DURYEE

To the Members:

It is exciting to try to take on the job as your new President. At this time there is much happening in the development of the Hardy Fern Foundation. We have been given a most generous gift for our Foundation by the late Tom Gillies. (We do miss him.) With his trust in us we hope to further our aims and reach toward our goals. At present we do have some 400 ferns representing 90 different species and varieties growing at our main display garden at the Rhododendron Species Botanical Garden. And now you can find them with a guide map available at the entrance. Guy Huntley reported at the annual meeting that to date we have contracts with eight Satellite Garden test sites, the newest additions being the Dallas Arboretum and Denver Botanic Garden. Help in coordinating these arrangements was given by members Naud Burnett and Mary Ellen Tonsing respectively. Five more gardens are on line for consideration. Also there are a number of requests for display gardens and two already open. We wish our satellite gardens all success and expect to report back to you on a regular basis.

Isoëtes lacustris.

I hope there will be more growers among our membership. The half grown plants could easily find a home if we could get you started. Spore is available thru the HFF spore list which is now handled by Wayne Baxter (see separate article). You have your spore list so why not start with several species and watch them grow on your window sill as I do!!

September 20th has been selected as the date for a HFF membership picnic. We plan to meet at Belfair State Park in Kitsap County, WA for a noon get together followed by a field trip to see *Woodwardia fimbriata* in the wild as well as to tour the nearby Mountaineers' Park and forest lands. Do plan to join us.

Have a good summer. I will be thinking of other things as we depart on our boat and return in September.

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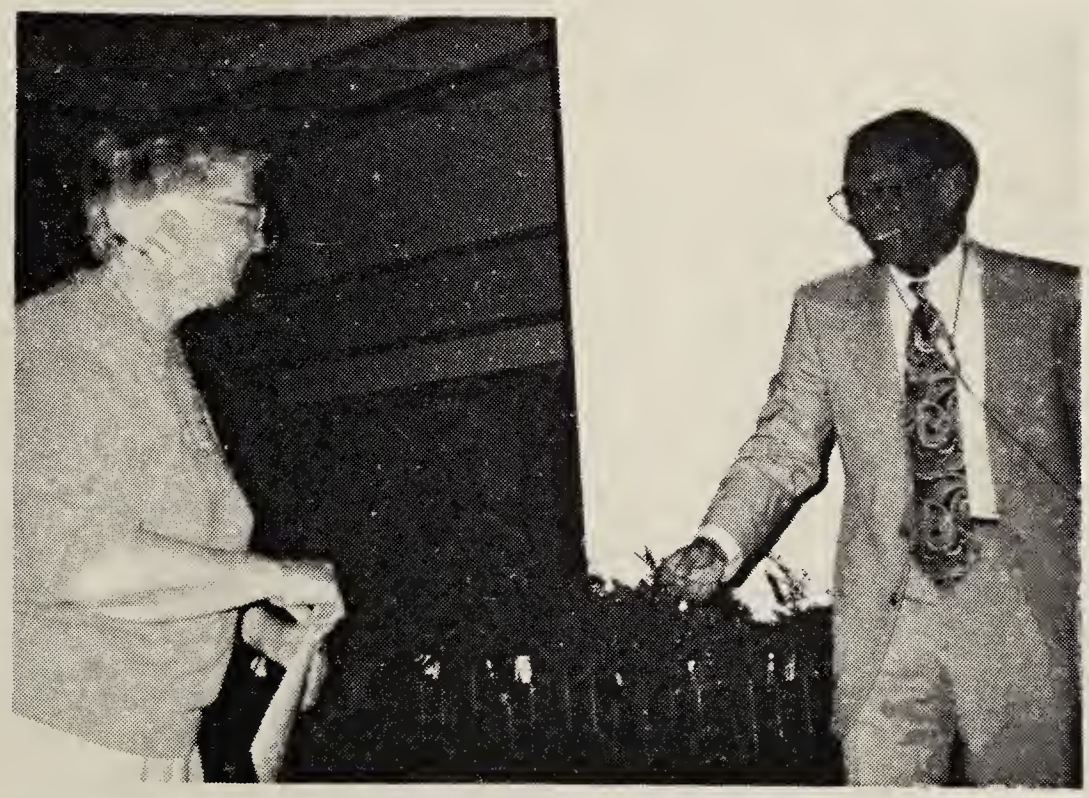

Dr. Carl Taylor, Secretary of the American Fern Society, presents a letter of commendation from the Society to Jocey Horder retiring Curator of the AFS spore exchange.

Dryopteris Arguta
Coastal Woodfern

James Horrocks
Salt Lake City, UT

Dryopteris arguta.
Photo by Sue Olsen.

Dryopteris: "Oak" or "Wood fern"
arguta: "Sharp-toothed"

The Coastal Woodfern is native only to the far western portion of North America, from British Columbia through Washington and Oregon to Southern California. It is rare in central Arizona. It is especially common under evergreen oaks in the Willamette valley in Oregon. It grows from a short, creeping crown to form a circular vase-like pattern of twice pinnate, somewhat leathery fronds, up to about 2 feet in length. It is found in half-moist to dry woods and half-shaded slopes, often frequenting sheltered rocky ledges, mostly below 5000 feet.

It is not likely to be confused with other species in the coastal ranges but in the garden it may look similar to any number of twice-pinnate evergreen Dryopteris species, such as *D. marginalis, D. uniformis,* etc. Careful examination will disclose the differences. It is said to be similar to *D. villarii* from the Alps of Europe*. There are no known hybrids.

Description: Rhizomes are short, creeping, and rather woody, forming a distinct crown. The stipes, from 4 to 12 inches long, have pale reddish-brown (chestnut) scales sometimes with a broad, darker area near the base. The blades are ovate-lanceolate to oblong acuminate, slightly leathery, and twice pinnate or nearly so. The pinnae are long and upward spreading, the largest pinnae being below the middle of the blade. The lower pinnae gradually become shorter and somewhat wider at the base. The pinnules are oblong-lanceolate, rounded-obtuse, serrate to incise, with incurved spiney teeth, hence the name "arguta" (sharp-toothed). The fronds can be from 12 to 32 inches long. The sori are large, close set and in two rows. The indusia are stiff, with a deep, narrow sinus.

Culture: Best grown in well-drained stony soils, perhaps a little on the dry side. It seems somewhat short-lived in constantly damp soils. The author's attempts to grow it in Utah have ultimately ended in failure. One planting lasted about three years and produced 12 to 15 inch fronds, before it eventually died out. A second attempt failed in the first year. Soil pH may have been a possible factor. It is not grown in eastern gardens of North America as far as is known. It is a neat and attractive fern and quite well worth the attempt. It might be interesting to take note of the localities where it has been successfully cultivated.

References:

A Field Manual of the Ferns and Ferns Allies of the United States and Canada (1985) David B. Lellinger, Smithsonian Institute, U.S.

Ferns and Fern Allies of California (1966) Steve J. Grillos, University of California Press, Berkeley

Ferns to Know and Grow (1984) F. Gordon Foster, Timber Press, Inc. Portland

*Pacific Northwest Ferns and Their Allies (1970) T.M.C. Taylor, Toronto

Ferning Around The World in 34 Acres

Iris E. Gaddis - Piedmont, CA

Welcome to the University of California, Berkeley Botanical Garden. Established on the Berkeley campus in 1890, it was moved to its present location in lower Strawberry Canyon in 1928. The garden is arranged according to geographical regions, having sixteen outdoor areas, and several greenhouses (three of them open to the public) housing collections from almost all countries of the world, some of which are tropical and need protection from the elements. All plants were grown from seeds, spores, cuttings or plants collected in the wild on various plant expeditions, or received through exchanges with other botanical gardens. The garden is open every day of the year except Christmas, from 9:00 a.m. until 4:45 p.m.

The University of Californica Botanical Garden (UCBG) is a member of the Botanical Gardens Conservation International (BGCI) formerly a unit of the International Union for Conservation of Nature and Natural Resources (IUCN) and as such receives current information as to the status of rare and endangered species throughout the world. A newly received list is compared to the garden collection. The BGCI is then informed and they may update their computer database regarding the distribution of these species in other botanical gardens all over the world. Categories as to the severity of endangerment are graded as endangered, vulnerable, or when less threatened, rare. Thus we are made aware of the degree to which certain plants are endangered. UCBG endeavors to keep the plant labeling as up-to-date as possible. All labels contain family, genus, species, accession date, and country of origin. Throughout the garden there are rare and/or endangered species, which are identified by a red dot on the label.

There are two sections devoted to Mexican/Mesoamerican plants. The first area (beds 173-178) is directly ahead of the parking lot. The plants here represent an interesting cross-section of the plants of this region, a land of diverse vegetation areas. While seeking out the ferns don't miss the Handflower Tree Chiranthodendron pentadactylon in bed 173. The flowers are deep red, waxy, rather tulip-shaped. Projecting from the flower are stamens that resemble a tiny red hand, complete with fingernails. Its blooming season is from March to October. In Beds 173 through 178 are species of Adiantum, Cheilanthes, Mildella, Polypodium, Tectaria, Thelypteris, and Woodwardia. Some of these were recently collected in eastern Mexico. The Cheilanthes fendleri has been in its niche by the main path (bed 178) since 1966. The spores of the Woodwardia spinulosa (bed 173) were collected in Oaxaca, Mexico in 1990. The disjunct Mesoamerican Area (beds 350-361) is up beyond the North American area and will be covered as we come to it.

The California area (beds 1-80) is appropriately the largest collection in the garden with seven acres in the main garden and five acres across the road in Mather Redwood Grove (beds 900-914). The beds are arranged according to plant communities, duplicating as closely as possible, and as many as possible, of California's varied plant communities. Rocks and soil from native sites were imported as necessary for the proper growth of the particular plants. There are outdoor display tables throughout the California native section with color graphics and explanatory text for the information of tour groups, classes and the casual visitor. Enter this area to the right of the parking lot. Pause to read the display sign describing the Pygmy Forest. No ferns here, but worth a bit of time to observe one of the interesting examples of California's unusual edaphic conditions, the white beds of true podsol-type soil which are distributed on ancient marine sandstone terraces along the Mendocino coast, especially near Fort Bragg.

The Alpine Fell Field (bed 15A) plants are being grown in imported scree. Plants that have adapted to the prevailing conditions in the seemingly barren, rocky, wind-swept mountain areas above or at timberline where the precipitation is mainly snow tend to be low-growing perennials growing among rocks for protection from the strong winds. Ferns that have been able to adjust to these unfriendly conditions, tucked in on the lee side of rocks are: Athyrium alpestre var. americanum, Polystichum lemmonii, P. scopulinum, Aspidotis densa (Cheilanthes siliquosa), and Cheilanthes gracillimum. The path leads to a seep area with bed 13 on the right and 15B on the left. One can look up the slope to see Pellaea brachyptera, Polystichum lonchitis and Polystichum imbricans. These and the above-mentioned ferns you are not apt to see unless you are an avid hiker. In 15C are the ever lovely Adiantum capillus-veneris, the beautiful hybrid A. X tracyi (A. jordanii X pedatum) and Dryopteris expansa, which

Dryopteris goldiana

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is fairly common in the Northwest, the northern states and Europe. At the end of this path there is a bench where one may, if so inclined, take a respite and enjoy the sound of the water trickling down Winter Creek. A path leads down to the banks of this stream and on the left side going down, there is a nice specimen of hybrid Lyman's polypody and Polystichum californicum. Retracing your steps back up to the main path, look for a colony of the Leathery Polypody, Polypodium scouleri in bed 16.

From this riparian area, proceed up to the main path and turn right. On your left is the chapparal bed 12B and a little further on, the new serpentine exhibit. Early this year the garden celebrated the dedication of this beautifully designed and artfully constructed exhibit. It was not business as usual while this was under construction, what with all those huge earthmovers remolding the terrain into an amphitheater-like space and replacing the existing soil with serpentine material. As inhospitable as the alpine fell field environment for plant life is, serpentine soil is even more so. Serpentine is widespread in California and has in fact been designated as the state rock. These soils have excessive amounts of magnesium and are deficient in calcium, in addition to having other minerals present in toxic amounts to make matters even worse. But on the bright side, once plants have made peace with such awful conditions, they don't have too much competition for the turf. Having said this, and considering the lengthy list of plants associated with serpentine, many of which have already been planted here, one must admit it can't be all that bad. In fact, some fern species may be found growing on serpentine rock soils, four of which are now in this new area: Adiantum aleuticum, Aspidotis densa (Cheilanthes siliquosa), Aspidotis californica (Cheilanthes californica) and their fertile hybrid Aspidotis X carlotta-halliae. The Aspidotis species are quite tiny and are dormant in summer.

Leaving this area from below turn left and search in beds 5A-6B for Cheilanthes clevelandii, which is 4-16" tall, fronds bare on upper surface and covered on the lower surface with reddish brown scales, and C. newberryi, which is 3-8", is covered with fine hairs on upper and lower surfaces, white above, tan below. Both of these have beadlike segments. These two as well as Pellaea mucronata (bed 5B) and P. andromedifolia (bed 6A) are confined to southern California and Baja California. You may know Astrolepis cochisensis (bed 5b), and Aspidotis californica (bed 6A) under their respective former names, Cheilanthes cochisensis and Cheilanthes californica.

Cheilanthes eatonii - Sean Hogan

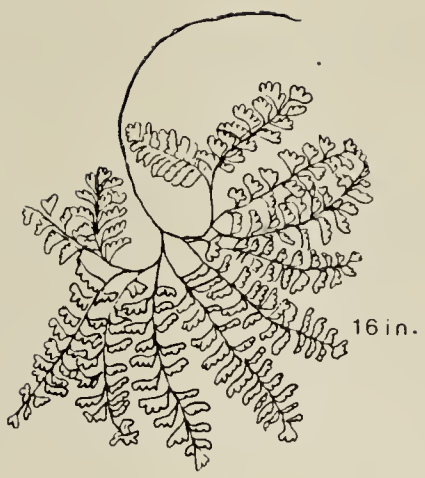
From 6B take the path that leads down to a bridge that crosses Strawberry Creek and up through a section of the palm garden to the Tropical House. Or while you are in this area you might saunter over to bed 2 where there is a colony of Polypodium californica var. kaulfussii and P. scouleri, and a Polypody near them that looks like a little hybridizing went on here. Then follow the road across the bridge and turn right on the first path past the meeting room to the Tropical House.

In the Tropical House the New World plants are on the right, the Old World plants on the left and in the rear a waterfall and pool luxuriantly surrounded by all imaginable wondrous flora. Among the ferns and fern allies in this greenhouse a few large specimens such as Merinthosorus drynarioides, Drynaria rigidula, Niphidium crassifolium and an Acrostichum sp. are conspicuously present. There are over forty ferns and fern allies here of all shapes and sizes, and color too, as in Selaginella uncinata and S. wildenovii which are blue. The first makes a nice ground cover the other likes to climb. This greenhouse provides the opportunity for classes of school children as well as UC Biology classes to see first hand

what a real rain forest really looks, feels and yes, smells like. Instead of chemicals for pest control the garden uses biological controls, when feasible, employing predatory mites, parasitic wasps, lacewings and tree frogs, etc. as part of the work force here.

Sooner or later you are going to have to leave this greenhouse, so as you do so turn right and wend your way through the palm garden to the main path. The Herb Garden is now on your left and the North American area on your right. There are really two separate herb gardens. This one, the Western Herb Garden, has the herbs with which we are more familiar, adjacent is the traditional Chinese Medicinal Herb Garden. The Western Herb Garden is arranged by uses of the various herbs, culinary herbs, flavorings for liquers and beer, pot-herbs, fragrances and essential oils and medicinals. The knot garden is an especially attractive feature. You might like to sniff your way through this lovely garden, many people people do.

Most of the plants in the North American area are native to eastern North America, including Canada and the Midwest. It is colorful most of the year with many perennials and shrubs providing a nice background for the ferns on this well-drained slope. In beds 306 through 310 there are sixteen different species of ferns. Three of these, Dryopteris goldiana, D. intermedia and D. austriaca var. spinulosa, are crown-formers and stay put where planted. The shrubs and perennials are rather dense on this fairly steep slope with the ferns more or less confined to the borders, though certain ferns like Athyrium asplenioides, and Dennstaedtia punctilobula have not completely agreed to be so limited. As this area is well irrigated throughout the year as needed, Onoclea sensibilis, Woodwardia aerolata, W. virginica, and Mattteuccia struthiopteris, Osmunda regalis var. spectabilis, which in nature



Adiantum aleuticum

grow in swamps, along river banks etc., thrive here and share this slope with varying degrees of expansiveness. Cheilanthes lindheimeri has a prominent sunny spot much to its liking and has a nice spread here while nearby C. tomentosa is more restrained in a much smaller space. Polystichum acrostichoides is in a fairly exposed place by the main path. Pellaea atropurpurea thrives nearby in full sun. When Thoreau referred to the "fresh and cheerful communities" of the Polypody in early spring he was probably referring to Polypodium vulgare (bed 304) which is abundant in the Northeast, but no doubt this could also be said of Polypodium polypodioides (bed 306) common in the southern states as well. Phegopteris hexagonoptera finds shade under Rhododendron minus. An imposing sight in bed 306, the California endemic Santa Lucia Fir Abies bracteata, grows naturally only in the canyons in the Santa Lucia Mountains, behind Big Sur and Monterey overlooking the Pacific.

Now back to the Mesoamerican Area (beds 350-361). This section is in the process of further development. Some parts of this area have suffered severe erosion problems. In a section not affected by these problems are some plants found in cloud forests. A few ferns that are finding a new home under the oak trees here are: Culcita coniifolia from Costa Rica, a fern of cloud forests from 6000-9000' throughout Central America, Mexico, and South America. There are seven polypodies here: Polypodium guttatum, P. plebium, P. thyssanolepis, Mexico, P. lepidotrichum, Mexico, P. myriolepis, Costa Rica, P. pyrrholepis, Mexico, and P. squamatum. Interesting fern trivia, the last four belong to a complex of ferns that have nectaries on a small auricle at or near the base of the pinna. In bed 361 Woodwardia martinezii and W. spinulosa, are taking enthusiastically to their new quarters. Both are very handsome ferns. W. spinulosa, the larger of the two, is widely distributed in Mexico and Central America, at elevations of 5500-8900 feet. W. martinezii has a limited distribution in Mexico at 4200-7000'. They appear to be quite compatible as according to Dr. John Mickel they hybridize to produce W. X semicordata.

Now we must retrace our steps past the North American bed 306. The interesting Garden of Plants for Mankind on the right (bed 850) contains economic plants that we live by. Just ahead in the Australian area (bed 510C) are three species of Callitris, the Cypress-Pines. The land "down under" has few pines and the fact that these trees have beautifully figured, fragrant wood for interior wood-working is unfortunate. It's wood is durable, and very resistant to termites, but not to the saw, man's favorite tool. In partial shade from these small trees Hypolepis glandulitera, superficially resembling the bracken fern, has been in this location since 1987 and came through the last freezing spell without harm. In its present location it has plenty of room for expansion and is taking full advantage of it. Culcita coniifolia, in the American subgenus Culcita is in the Mesoamerican Area.

To the right is the South American area (beds 600-658). It takes some dedication to find the ferns in this area, but worth the effort. There are three ferns collected in

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Peru, Thelypteris conspersa, as long ago as 1955, Cheilanthes myriophyllum, in 1957 and Polypodium thyssanolepis in 1958, collected during the 6th Andean expedition to collect plants for the garden. There are four separate collections of this fern species from different countries. Other ferns collected in 1990 and 1991 from Argentina: Adiantum excisum, Blechnum species, Cheilanthes mysophylla, C. pruinosa, Cheilanthes buchtienii and an unidentified Polypodium. An experimental irrigation system has been devised in a tree in one of the beds to simulate a cloud forest. It will be interesting to see if the ferns will join the mosses on this tree. Many plants in this area are mostly unfamiliar and not cultivated in the United States. Many Fuchsia species adorn the area. One tree that is flagged for the Biology classes is Nothofagus dombeyi as a good example for discussion of evolutionary concepts. On a clear day this is a great place to look toward the Golden Gate and marvel at the view, especially the Farallon Islands, thirty miles west of the Golden Gate, the most famed of the seabird rookeries. A bit farther on and clearly visible from the main path is a small area planted with different genera of the delightfully ornamental Amaryllis family.

The Australasian area (bed 503-513) is opposite the South American area. Down the road past the colony of Pteridium aquilinum (have you ever seen a bracken fern that isn't in a colony?) are the tree ferns. Inasmuch as the accession dates range from 1954 to 1970 for Dicksonia fibrosa, D. youngiae, D. squarrosa, D. antarctica, it is clear they have lived through some rough times. They have held their heads high through spells of extreme heat and severe cold spells. Now about 15 to 18 feet tall and a sight to see. Growing under these are a Todea barbara, a small specimen of Polystichum cystostegia and a tiny Blechnum penna-marina setting out to make a nice ground cover. The nearby Sadleria pallida from Hawaii was doing very well, thank you, until the freeze of the winter of 1990. Though it suffered severely from the debilitating effects it is slowly reestablishing itself.

Tropical house - Jerry Parsons

Three members of the Podocarp family are growing in this vicinity. Two Phyllocladus trichomanoides are in bed 512 among the tree ferns. Curious trees of the southern hemisphere, they have cladodes, branchlets that look like and function as leaves. Their seeds are like tiny acorns. Nearby, in bed 508 along the path separating the Australasian area from the Rhododendron Dell the beautiful Dacrydium cupressinum is quite striking with long branchlets that droop gracefully.

If your visit to the Garden is in Spring you will know when you have arrived at the Rhododendron Dell of the Asian area (beds 218-501), one of the largest in the garden and one of the first to be developed. Rhododendron arboreum starts off the season and the show continues through summer. As you head into the Dell check out the two little Aleuritopteris argentea (bed 220) that are tucked into the top of the rock wall on East Asian hill and then plunge right into the forest. Fern spores go where the wind takes them without regard to geographic designations and they sometimes make serendipitous landings in this area. There are ferns from Mexico and elsewhere along the paths, the ones without labels. The lovely illegal immigrants are a Maidenhair, a Polystichum setiferum, and Polypodium guttatum, which is originally from Mexico has made a nice ground cover in bed 235, and across the path from that, Pyrrosia lingua has also covered a bit of ground. Polystichum munitum is here, there and everywhere in the garden, establishing its status as original resident. Also, the irrepressible Lady Fern which so many people insist on informing you "ain't no lady" has spread her progeny in every part of the garden. In Bed 237 there is a fern cobble with an attractive Arachniodes nipponicum,

Pteridium aquilinum

Pteris vittata, Matteuccia orientalis, M. intermedia, Cyrtomium macrophyllum, C. caryotideum and Polystichum neolobatum. Most of these ferns hail from Hubei Province, China and were collected by Bruce Bartholomew in 1980 when he was Curator of the UCBG. For the information of those who are familiar with the garden, the magnificent Dryopteris wallichiana is no longer reigning over this fealty. He succumbed to the freeze of 1990. Nearby, two very elegant Microlepia platyphylla, from Indonesia catch one's eye, one standing imposingly alone in the open, the other in the shade of the Stranvesia davidiana. Near the border of the path across from the Stranvesia davidiana is a neat little Dryopteris decipiens. Pyrrosia polydactylis can be found in several places throughout the Asian area.

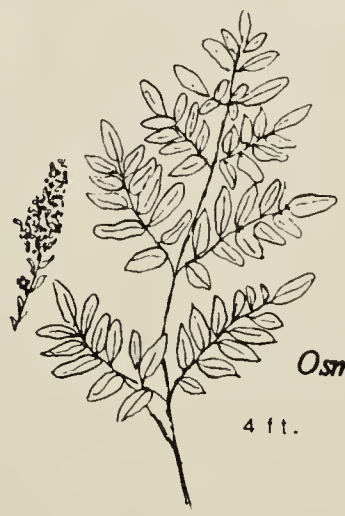
Strawberry Creek runs through the Rhododendron Dell and this is perhaps one of the most magic places in the whole garden. There is a path down at streamside where one may enjoy walking in the dry season. Greeting visitors as they cross the stream is a beautiful Taiwania cryptomerioides, still in its youth, it has great beauty with its gracefully drooping branchlets. Several Asplenium scolopendriums are tucked in between the rocks on the wall, as well as Pyrrosia lingua. Beside the stream is a really impressive sight—an Angiopteris lygodiifolia. Though other species of these primitive ferns are cold sensitive, this species is native to higher elevations in Japan, and proved hardy enough to stand up to the 1990 freeze. Woodwardia radicans is growing with reckless abandon under Rhododendron protistum (bed 230).

It takes restraint to avoid launching into a detailed narrative of diversity of plant life in this area alone, the primitive magnolias, the giant redwoods, Metasequoia glyptostroboides, Sequoia sempervirens, Sequoiadendron gigantea, as well as Cunninghamia konishii, Taiwania cryptomerioides, to name only a few that are providing more or less dense shade in areas where they preside.

Across Strawberry Creek and just a few feet away up a steep slope from here is the New World Desert area (beds 152-171). There are ferns aplenty here! This is a very steeply sloping site so the drainage is perfect and their is irrigation as needed in the summer months when there is no rain. Many have been collected in just the last year or so. With their roots tucked firmly and deeply into the soil around either rocks or cacti, these are the most captivating little survivors you could imagine. One must marvel that such seemingly fragile looking little plants could tough it out in such conditions. Cacti have adapted different means of survival in this lethal environment (some Opuntias can survive internal temperatures of around 145oF). Some of the ways in which they have adapted for survival are by developing spines, elimination of leaves and transferring photosynthesis to the stem, which then became more globe-like in many species, reduction in size, and some have tiny surface hairs that may trap air and act as insulation. Ferns have taken this challenge differently with adaptations such as hairs, scales, waxy substances, rapid growth, long roots, in some species reduced size, etc., and in some cases developing an apogamous lifestyle. The New World Desert area is arranged by geographic communities. Some of these ferns were collected in Baja California, some in Argentina, others in Arizona. Astrolepis cochisensis, A. integerrima, A. sinuata, Cheilanthes brandegei, C. bonariensis, C. buchtienii, C. feei, C. grayi, C. lindheimeri, C. mysophylla, C. pringlei, C. pruinosa, C. parryi, Pellaea mucronata, and a Polypodium sp. A simulated limestone outcrop is being created by the addition of tufa to accommodate the limestone addicted ferns. These xerophytic ferns are rather difficult to sort out, but now we are fortunate to have them growing in close proximity and thus provide us the opportunity to compare and study the differences and similarities of this fascinating group of ferns.

African Hill (beds 100-146) invites comparison of the Yuccas and Agaves of the New World to the Aloes of Africa. Convergent evolution is also remarkable in the Cacti of the New World compared to the Euphorbs in the Old World.

Ahead, the path to the left leads you to the Fern House where ferns from all over the world are displayed. Just inside and to the left there is an interesting display of carnivorous plants in this greenhouse, including species of Utricularia (bladderwort), Sarracenia, Darlingtonia, Heliamphora, Cephalotis, Nepenthes (pitcher plants), Drosera (sundew), Byblis, Drosephyllum, Pinguicula (butterwort) and Dionaea (Venus fly trap), all manage to keep themselves well fed. Ferns in this greenhouse ensconced as they are in pots do not have the luxury of



Osmunda regalis

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having their roots free to roam about in the ground as they do in the Tropical House. They are nonetheless a pampered lot with all the amenities of a lifestyle to which they have become accustomed. You have a chance to compare four species of Lygodium at the end of the greenhouse including L. circinnatum, L. flexuosum, L. japonicum, and L. lanceolatum from Madagascar demonstrate the diversity of form in this genera. In a special high humidity case with the filmy ferns you can see side-by-side a tiny, deeply dissected Elaphoglossom peltata and the comparatively large, very hairy Elaphoglossum crinitum from the cloud forest of Costa Rica. Hanging overhead and mounted on plaques are Polypodies of all ilk, of surprising unlikeness, from Microgramma tecta to the gargantuan Aglaomorpha heraclea and Drynaria rigidula. The primitive Angiopteris evecta is here in all its glory across the isle from the Lygodiums. There is amazing variety in the over 100 ferns in this greenhouse, mostly tropical and subtropical species, some rare and unusual.

Oh, by the way, you must take a peak in the Desert and Rain Forest House, the greenhouse opposite the fern house. In a glass enclosed section there are orchids, bromeliads, Nepenthes, Platyceriums, and many more epiphytes. Something is in bloom year around. The cacti and succulent collection is captivating. In a conspicuous setting, planted in a section of terra cotta drain pipe is a unique plant curiosity, Welwitschia mirabilis, of the Namib Desert of southern Africa. Sir Joseph Hooker remarked of it "the most wonderful plant ever brought to this country (England), and the very ugliest." But in spite of that build-up, every living thing has it's niche and where a year with an inch of rain is fortuitous, where the morning fog is all the moisture available to sustain it and its few well-spaced desert associates, this strange plant has evolved, and indeed may survive 1500-2000 years. In its lifetime it will produce only two leaves, which could extend many feet in all those years if not tattered by the wind and browsing antelope. It is classified as a gymnosperm, in the Order Gnetales, but it is unlike Ephedra or Gnetum or any other plant for that matter.

Mather Redwood Grove is across Centennial Drive from the rest of the garden (beds 900-916). This 5-acre grove of redwoods was planted in the 1930's and is well established with an understory of plants normally associated with the redwood forest. Here Adiantum aleuticum, A. jordanii, A. x tracyi, Athyrium filix femina var. cyclosorum, Blechnum spicant, Dryopteris arguta, D. expansa, Pentagramma triangularis, Polystichum munitum, and Woodwardia fimbriata are in their native element. There are benches here that invite a tranquil pause in this special place.

Do allow yourself a lengthy time slot when you visit. There is a lot to see here, even if you were to limit yourself to looking only at fern species.

I want to express my thanks and appreciation to the staff of the UCBG for their time and assistance with the many details in this endeavor.

FERNS IN MEXICAN AREA

Bed #	Accession	Genera	Species
174	91.0736	Adiantum	capillus veneris
174	91.0743	Thelypteris	concinnum
176	91.0740	Tectaria	heracleifolia
177	91.0707	Mildella	intramarginalis
177	60.0471	Phlebodium	aureum var. aerolata
177	90.2172	Polypodium	sp.
178	66.0629	Cheilanthes	fendleri
178	58.0046	Cheilanthes	lendigera
178	91.0748	Polypodium	sp.
178	90.2617	Polypodium	sp.
178	92.1020	Woodwardia	spinulosa

FERNS IN SOUTH AMERICAN AREA

Bed #	Accession	Genera	Species
601	62.1213	Polypodium	squamatum
602	55.00B0	Thelypteris	conspersa
602	5B.10B7	Polypodium	thyssanolepis
603	57.0729	Cheilanthes	myriophylla
654	91.1231	Cheilanthes	mysophylla
654	91.1228	Blechnum	sp.
654	91.1229	Adiantum	excisum
654	91.1232	Cheilanthes	pruinosa
654	90.2631	Polypodium	sp.
654	90.1230	Notholaena	buchtienii

FERNS - CALIFORNIA AREA

Bed #	Accession	Genera	Species
1B	B7.1015	Blechnum	spicant
	B6.1789	Botrychium	multifidum ssp. silaifolium
2	76.0793	Botrychium	multifidum ssp. silaifolium
	B6.0002	Polypodium	californicum var. kaulfussii
	86.0007	Polypodium	scouleri
	87.0094	Polystichum	munitum
3A	88.0885	Marsilea	sp.
4	82.1625	Polypodium	californicum var. kaulfussii
5A	86.0909	Cheilanthes	clevelandii
	86.0012	Cheilanthes	newberryi
	65.0025	Cheilanthes	sp.
	65.1003	Pellaea	mucronata
5B	85.1175	Astrolepis	cochisensis
	65.0025	Cheilanthes	sp.
	85.1222	Cheilanthes	sp.
	65.1003	Pellaea	mucronata
6A	B6.0023	Aspidotis	californica
	83.105B	Pellaea	andromedifolia
6B	65.1209	Cheilanthes	clevelandii
7A	B9.1659	Adiantum	pedatum var. aleuticum
	92.0967	Aspidotis	carlotta-halliae
	87.0033	Aspidotis	densa
7B	89.1659	Adiantum	aleuticum
	82.1147	Aspidotis	carlotta-halliae
10	83.0579	Pentagramma	triangularis var. semipallida
13	86.1544	Athyrium	filix- femina
	82.1487	Pellaea	brachyptera
	86.1530	Polystichum	lonchitis
13	86.0958	Thelypteris	nevadensis
14	75.0357	Equisetum	telmateia var. braunii
	86.1556	Polystichum	imbricans
15A	89.1629	Aspidotis	densa
	B2.0630	Athyrium	alpestre var. americanum
	8B.083B	Athyrium	filix-femina var. cyclosorum
	90.0003	Cheilanthes	gracillima
	90.0501	Polystichum	lemmonii
	B1.10BB	Polystichum	lemmonii
	90.1093	Polystichum	scopulinum
	84.0893	Selaginella	sp.
	89.1631	Selaginella	sp.
	60.0707	Thelypteris	nevadensis
	91.1410	Thelypteris	puberula
15C	B3.1057	Adiantum	capillus-veneris
	B3.0B62	Adiantum	capillus-veneris
	B9.1744	Adiantum	X tracyi
	85.0544	Dryopteris	expansa
16	82.1173	Cystopteris	fragilis
	65.1113	Polypodium	californicum
	53.02B9	Polypodium	californicum
	50.0253	Polypodium	glycyrrhiza
16	71.0449	Polypodium	scouleri
	61.0164	Polystichum	californicum
	68.1040	Polystichum	californicum
17	87.1325	Adiantum	pedatum var. aleuticum
	60.0226	Polydodium	glycyrrhiza
	67.1041	Polystichum	munitum
18	58.0441	Polypodium	glycyrrhiza
	87.0059	Polystichum	californicum
	84.09B3	Polystichum	dudleyi
20	57.0223	Pellaea	andromedifolia
	58.0440	Pellaea	andromedifolia
	62.0432	Pellaea	andromedifolia
22A	87.0186	Adiantum	jordanii
	72.0190	Dryopteris	arguta
	82.0244	Pentagramma	triangularis
	B3.0123	Polypodium	glycyrrhiza
	89.0630	Polypodium	glycyrrhiza
22B	82.0470	Adiantum	jordanii
	71.0105	Pteridium	aquilinum var. pubescens
23B	60.0178	Pellaea	mucronatum
30	85.1379	Pellaea	brachyptera
71A	B3.0144	Equisetum	hymale var. robustum
	8B.0B85	Marsilea	sp.
72	B5.1232	Pentagramma	triangularis var. viscosa
80	75.0357	Equisetum	telmateia var. braunii
900	75.0967	Polystichum	munitum
901	77.0433	Adiantum	pedatum var. aleuticum
	75.0967	Polystichum	munitum
	76.0089	Woodwardia	fimbriata
902	85.1870	Dryopteris	expansa
903	76.0089	Woodwardia	fimbriata
904	82.0458	Blechnum	spicant
	75.0967	Polystichum	munitum
905	75.0967	Polystichum	munitum
906	81.0015	Adiantum	pedatum var. aleuticum
	50.0561	Adiantum	X tracyi (jordanii X pedatum)
	76.0116	Athyrium	filix-femina var cyclosorum
	87.0091	Dryopteris	expansa
	76.0200	Pentagramma	triangularis
	75.0973	Woodwardia	fimbriata
911	81.0015	Adiantum	pedatum var. aleuticum
	76.0200	Pentagramma	triangularis
	76.0089	Woodwardia	fimbriata
912	76.0200	Pentagramma	triangularis
913	76.00B9	Woodwardia	fimbriata
914	70.1010	Dryopteris	arguta
	85.1B70	Dryopteris	arguta
	76.0089	Woodwardia	fimbriata

FERNS IN TROPICAL HOUSE

Bed #	Accession	Genera	Species	
1003	82.1639	Acrostichum	sp.	
	57.0774	Adiantum	hispidulum	(Indonesia)
	90.2361	Adiantum	macrophyllum	(Costa Rica)
	79.0294	Adiantum	malesianum	(China)
	90.2055	Adiantum	peruvianum	(Ecuador)
	63.0392	Asplenium	nidus	
	58.0382	Asplenium	vulcanicum	
	56.0655	Athyrium	sp.	
	90.2237	Blechnum	sp.	
	90.1640	Cyathea	sp.	(Costa Rica)
	54.1140	Davallia	solida var. lindleyi	(Guam)
	90.2373	Diplazium	cristata	(Costa Rica)
	57.0210	Diplazium	werckIerianum	(Honduras)
	69.0032	Doryopteris	elegans	(8razil)
	69.0031	Doryopteris	pedata	
	53.0385	Drynaria	rigidula	(New Caledonia)
	58.0038	Equisetum	bogotense	
	88.0883	Equisetum	giganteum	
	78.0364	Equisetum	myriochaetum	
	58.0548	Hemionitis	palmata	(Costa Rica)
	79.0302	Lemmaphyllum	microphyllum	(China)
	61.0756	Lygodium	flexuosum	
	55.0078	Merinthosorus	drynarioides	(New Guinea)
	78.0495	Niphidium	crassifolium	(Costa Rica)
	59.0519	Osmunda	regalis var. spectabilis	
	66.0601	Platycerium	andinum	
	88.0556	Platycerium	elephantotis	(Trop. Africa)
	57.0780	Pleopeltis	percussa	(Peru)
	79.0295	Pteris	fauriei	(China)
	90.2364	Pteris	tripartita	Costa Rica)
	56.0493	Psilotum	nudum	
	52.1874	Pyrrosia	lingua	(Japan)
	74.0723	Salvinia	auriculata	
	64.0666	Selaginella	braunii	(W. China)
	84.0825	Selaginella	erythropus	
	64.0670	Selaginella	pallescens	(Mexico)
	90.1664	Selaginella	plana	
	80.0826	Selaginella	uncinata	(China)
	90.1676	Selaginella	hildebrandei	
	55.0076	Stenochlaena	milnei	(Philippines)
	78.0268	Thelypteris	augescens	(Florida)
	58.0598	Thelypteris	dentata	(Costa Rica)
	90.2370	Cyathea sp.		(Costa Rica)

FERNS IN MESOAMERICAN AREA

8ed #	Accession	Genera	Species
350	90.2237	8lechnum	sp.
350	90.2296	Culcita	coniifolia
350	50.0240	Polypodium	lepidotrichum
350	77.0543	Polypodium	plebeim
350	75.0057	Polypodium	pyrrholepis
350	92.1020	Woodwardia	spinulosa
350	91.0749	Polypodium	sp.
351	77.0543	Polypodium	plebeim
361	91.0736	Adiantum	capillus-veneris
361	90.2616	Asplenium	sp.
361	91.0722	Asplenium	sp.
361	91.0720	Blechnum	sp.
361	60.0471	Phlebodium	aureum var. aerolatum
361	50.0443	Polypodium	guttatum
361	50.0240	Polypodium	lepidotrichum
361	56.0637	Polypodium	myriolepis
361	52.1322	Polypodium	plebium
361	62.1213	Polypodium	squamatum
361	55.0125	Polypodium	thyssanolepis
361	90.2632	Polypodium	sp.
361	81.0935	Polypodium	sp.
361	91.0741	Pteris	sp.
361	90.2291	Rumorha	sp.
361	59.0055	Woodwardia	martinezii
361	92.1020	Woodwardia	spinulosa

FERNS - NORTH AMERICAN AREA

8ed #	Access. #	Genera	Species
302	60.1301	Polystichum	acrostichoides
	86.1737	Woodwardia	areolata
	82.2036	Woodwardia	virginica
304	86.1775	Polypodium	vulgare
305	82.2141	Dryopteris	intermedia
	80.0318	Matteuccia	struthiopteris
	61.0966	Onoclea	sensibilis
	82.2034	Osmunda	regalis var. spectabilis
	82.2144	Phegopteris	hexagonoptera
	75.0542	Polystichum	acrostichoides
306	55.0468	Cheilanthes	lindheimeri
	50.0220	Cheilanthes	tomentosa
	84.0647	Pellaea	atropurpurea
	84.0680	Polypodium	polypodioides
309	82.2202	Athyrium	asplenioides
	82.2211	Dennstaedtia	punctilobula
	86.1711	Dryopteris	austriaca var. spinulosa
	82.2143	Dryopteris	goldiana
	86.1770	Dryopteris	sp.
	86.1272	Dryopteris	sp.
	80.0321	Onoclea	sensibilis
	82.2140	Polystichum	acrostichoides
	82.2087	Woodwardia	areolata
310	86.1776	Dryopteris	sp.
	86.1271	Polystichum	acrostichoides

FERNS IN ASIAN AREA

8ed #	Accession	Genera	Species
221	91.0197	Aleuritopteris	argentea
221	70.0494	Pyrrosia	polydactylis
230	71.0011	Woodwardia	radicans
231	80.1463	Woodwardia	radicans
232	80.1456	Pteris	vittata
235	52.1874	Pyrrosia	lingua
236		Polypodium	guttatum
237	71.0002	Arachniodes	nipponicum
237	80.1466	Cyrtomium	macrophyllum
237	80.1457	Matteuccia	intermedia
237	80.1461	Matteuccia	orientalis
237	80.1459	Polystichum	neolobatum
237	80.1456	Pteris	vittata
239	50.0577	Microlepia	platyphyllum
240	71.0045	Angiopteris	lygodiifolia
240	91.0196	Dryopteris	decipiens
240	70.0494	Pyrrosia	polydactylis
240	67.0202	Thelypteris	puberula

FERNS IN AUSTRALASIA AREA

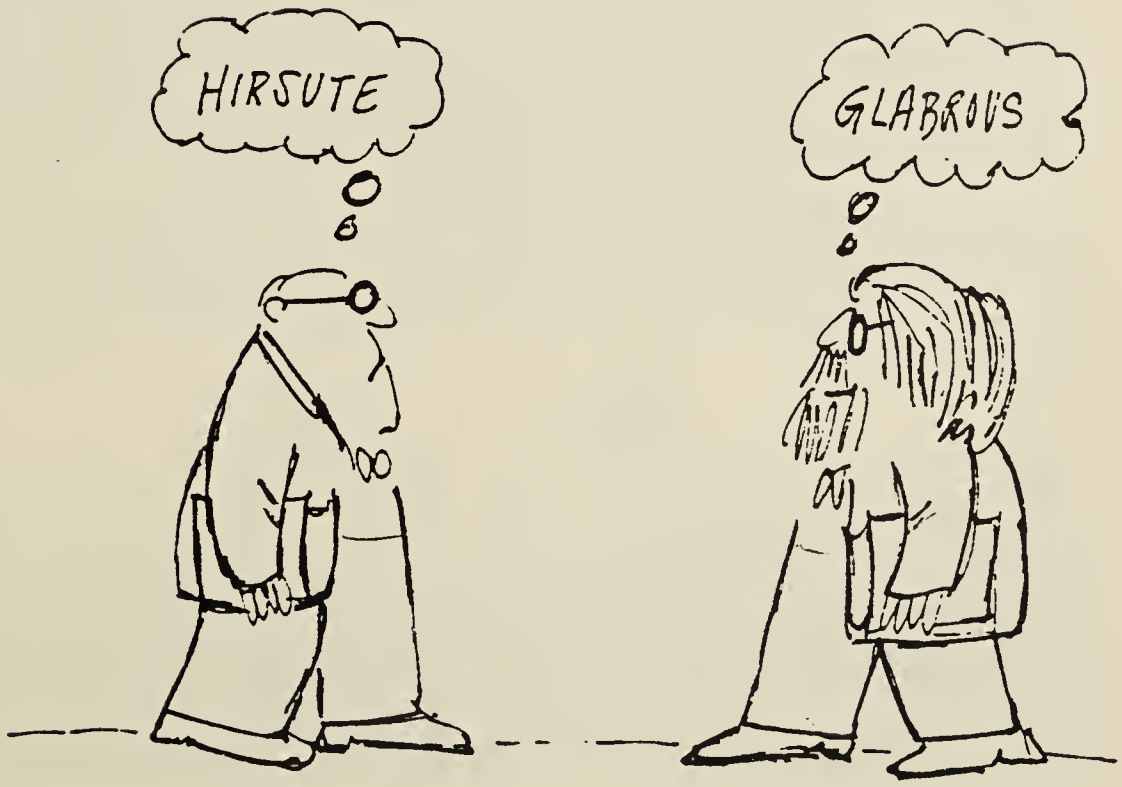
Bed #	Accession	Genera	Species
506	87.0147	Calochlaena	dubia
508	70.0498	Dicksonia	antarctica
508	78.0380	Sadleria	pallida
509	54.1237	Doodia	aspera
511	87.0165	Calochlaena	dubia
512	92.0135	8lechnum	penna-marina
512	54.1112	Dicksonia	fibrosa
512	61.1619	Dicksonia	squarrosa
512	56.0656	Dicksonia	youngiae
512	92.0150	Polystichum	cystostegia
512	59.0561	Todea	barbara
513	56.0657	Pteridium	aquilinum

FERNS IN FERN HOUSE

Genera	Species	
Adiantum	hispidulum	(Indonesia)
Adiantum	melasianum	(China)
Adiantum	tetraphyllum	(Venezuela)
Adiantum	villosum	(Peru)
Aglaomorpha	heraclea	(Java)
Aglaomorpha	meyenianum	(Philippines)
Angiopteris	evecta	(Moorea)
Araiostegia	hymenophylloides	(Java)
Arthropteris	orientalis	(Rhodesia)
Asplenium	caudatum	
Asplenium	induratum	
Asplenium	lucidum	(New Zealand)
Asplenium	myriophyllum	
Asplenium	nidus	
Athyrium	sp.	(Australia)
Campyloneurum	angustifolium	(Costa Rica)
Campyloneurum	phyllitidis	(U.K.)
Campyloneurum	costatum	(Costa Rica)
Colysis	wrightii	(Japan)
Coniogramme	frazinea	(Java)
Crypsinus	hastatus	(Japan)
Ctenitis	sp.	
Diplazium	ceratolepis	(Costa Rica)
Diplazium	cristata	(Costa Rica)
Diplazium	lanceum var. dentata	(SE Asia)
Diplazium	lonchophyllum	(Costa Rica)
Doryopteris	elegans	(Brazil)
Drynaria	sp.	(New Caledonia)
Drynaria	quercifolia	(Java)
Drynaria	rigidula	(New Caledonia)
Drynaria	rigidula	(Indonesia)
Elaphoglossum	crinitum	(Panama)
Elaphoglossum	crinitum	(Costa Rica)
Elaphoglossum	flaccidum aff.	(Costa Rica)
Elaphoglossum	peltatum	(Venezuela)
Elaphoglossum	reticulatum	
Elaphoglossum	sp.	(Costa Rica)
Grammitis	tenella	
Hemionitis	palmata	(Costa Rica)
Humata	heterophylla	(Fiji)
Hymenophyllum	demissum	(New Zealand)
Hymenophyllum	sp.	(Costa Rica)
Lastreopsis	decomposita	(Australia)
Leptochilus	decurrens	(Java)
Lophosoria	quadripinnata	
Lygodium	circinnatum	
Lygodium	flexuosum	
Lygodium	japonicum	
Lygodium	lanceolatum	(Madagascar)
Macroglossum	smithii	(Malaysia)
Marratia	fraxinea	(Australia)
Marsilea	drummondii	(Australia)
Microgramma	palmeri	(Mexico)
Microgramma	tecta	(Venezuela)
Microlepia	speluncae	(Rep. of Congo)
Microsorum	musifolium	(Java)
Microsorium	scolopendrium	(Guam)
Microsorium	scolopendrium	(Guadalcanal)
Neocheiropteris	ensata	(Japan)
Nephrolepis	exaltata	(Virgin Isl.)
Niphidium	crassifolia	(Peru)
Oleandra	sp.	(New Guinea)
Osmunda	regalis	(Costa Rica)
Pecluma	alfredii	(Mexico)
Pellaea	viridis	
Platycerium	sp.	(Australia)
Platycerium	stemaria	(Madagascar)
Platycerium	sp.	
Pleopeltis	excavata	(Thailand)
Polybotrya	osmundaceae	(Costa Rica)
Polybotrya	serratifolia	(Venezuela)
Polypodium	fraxinifolium	(Venezuela)
Polypodium	pellucidum	(Hawaii)
Polypodium	pyrrholepis	(Mexico)
Polypodium	rosei	(Mexico)
Polypodium	vitiense	
Pseudodrynaria	coronans	(East Asia)
Pteris	altissima	(Bolivia)
Pteris	quadriaurita var.	tricolor
Pteris	semipinnata	(Hong Kong)
Pyrrosia	sp.	(New Caledonia)
Salvinia	auriculata	(Trop. America)
Scyphularia	pentaphylla	(Indonesia)
Scyphularia	pycnocarpa	(Fiji)
Selaginella	erythropus	(Trop. America)
Stenochlaena	milnae	(Philippines)
Tectaria	melanocaulis	(Java)
Thelypteris	navarrensis	(Costa Rica)
Trichomanes	kapplerianum	(Trinidad)
Trichomanes	sp.	(New Zealand)

FERNS IN NEW WORLD DESERT AREA

Bed #	Accession	Genera	Species
153	92.0105	Cheilanthes	bonariensis aff.
153	86.0909	Cheilanthes	brandegei
153	93.0586	Cheilanthes	feei
153	92.0118	Cheilanthes	lindheimeri
158	91.1230	Cheilanthes	buchtienii
158	92.0067	Astrolepis	cochisensis
158	92.1530	Astrolepis	sinuata
158	91.1231	Cheilanthes	mysophylla
158	91.1232	Cheilanthes	pruinosa
171A	92.1531	Cheilanthes	feei
171A	86.1019	Pellaea	mucronata
171A	92.1532	Cheilanthes	parryi
171A	91.0521	Cheilanthes	parryi



1994-1995 Spore Exchange

Wayne Baxter

Well, it's that time of year again. It's time to collect the spores. It just wouldn't be summer without that traditional all American pastime of spore collecting. Let's make an all out effort this year and try to make this list the longest one ever.

Just a reminder, the HFF spore exchange has changed hands. The spore exchange will now be handled by Wayne Baxter. All spore donations and requests should be mailed to the address below:

Wayne D. Baxter
307 Riverdale Cir.
Stephenson, VA 22656, USA

I am going to try to put the list out with the November newsletter so it is important to mail in your donations by early September if feasible.

Thanks to the assistance of my computer whiz Jeff Wyatt the database is ready for input. So when you are sending in your spores, if you have time, please jot down any information that you have about the fern. Things that will be useful are collection site, origin, size, the hardiness zone where they grow, size, etc. We will add this information to the list as it becomes available and hope to have it as comprehensive as possible.

Although the HFF Spore Exchange gladly accepts spores donated in any condition, members that want to help can speed the exchange along by separating the spore from the chaff. This can be done quite easily with a plain piece of white paper. Place the chaff and spores on the paper and, holding it over another piece of paper gently tap the paper. The chaff will move across the paper more quickly than the spores. When all of the chaff has been tapped off what will be left will be the spores. This process can be repeated on the chaff that is left over to obtain more spores for the final sample. Once this is completed fold the spores up in the piece of paper and jot down any information that you have about the fern and ship it on to the exchange. This process can be time consuming and members who are unable to do this separation should mail them in any way that they can. We'll be glad to receive them.

The ferns in the following list are ferns that have been listed before but are currently out of stock. If you have any of these ferns available please send them in. Just because your fern isn't on the need list doesn't mean it isn't needed however. Send in all that you have. Thanks!

Acystopteris japonicum
Adiantum aleuticum fastigiate form
Adiantum aleuticum rosy new growth
Adiantum aleuticum 'Subpumilum type'
Adiantum capillus-veneris
Adiantum capillus-veneris 'Reginae'
Adiantum diaphanum
Adiantum formosum
Adiantum monochlamys
Alsophila australis
Arachniodes mutica
Arachniodes simplicior
Arachniodes simplicior 'Major'
Arachnoides standishii
Aspidotis carlottta-halliae
Asplenium billotii
Asplenium bradleyi
Asplenium flaccidum
Asplenium forisiense
Asplenium incisum
Asplenium marinum
Asplenium monanthes
Asplenium pinnatifidum
Asplenium platyneuron cresting tendancy
Asplenium ruta-muraria 'Dolomiticum'
Asplenium septentrionale
Asplenium trichomanes
Asplenium trichomanes 'Incisum Claphami'
Asplenium trichomanes ssp. inexpectans
Asplenium trichomanes notho ssp lucanum
Asplenium trichomanes 'Pachyrachis'
Asplenosor us x ebenoides
Athyrium alpestre var. americanum
Athyrium angustum
Athyrium cyclosorum
Athyrium deltoidofrons
Athyrium filix-femina 'Corymbiferum'
Athyrium filix-femina 'Fieldii'
Athyrium filix-femina 'Foliosum Grandiceps'
Athyrium filix-femina 'Minutissimum'
Athyrium filix-femina 'Plumosum'
Athyrium filix-femina 'Subplumosum Cristatum'
Athyrium niponicum 'Metallicum cristatum'
Athyrium pycnocarpon
Athyrium rupestre
Blechnum minus
Blechnum penna-marina 'Cristatum'
Blechnum spicant large form. 3'
Camptosorus rhizophyllus
Cheilanthes argentea
Cheilanthes eatonii
Cheilanthes feei
Cheilanthes fendleri
Cheilanthes gracillima
Coniogramme japonica
Cryptogramma cascadensis
Cyathea australis 'Norfolkiensis'
Cyrtomium caryotideum
Cyrtomium caryotideum x C. falcatum
Cyrtomium falcatum 'Butterfieldii'
Cyrtomium fortunei 'Clivicola'
Cystopteris alpina
Cystopteris montana (fragilis)
Cystopteris protusa
Diplazium japonicum
Doodia media
Dryopteris affinis
Dryopteris affinis 'Angustata Cristata'
Dryopteris affinis ssp. borreri v. borreri
Dryopteris affinis 'Crispa'
Dryopteris affinis 'Grandiceps Askew'
Dryopteris affinis 'Pinderi'
Dryopteris affinis 'Polydactyla Harvey
Dryopteris decipiens
Dryopteris filix-mas 'Barnesii'
Dryopteris filix-mas 'Crispa'
Dryopteris filix-mas 'Cristata Martindale'
Dryopteris filix-mas 'Cristata Nana'

Dryopteris filix-mas 'Grandiceps'
Dryopteris formosana
Dryopteris hirtipes
Dryopteris ludoviciana
Dryopteris pseudo-mas
Dryopteris remota
Dryopteris saxifraga
Dryopteris sichotenesis
Dryopteris uniformis 'Cristata'
Gymnocarpium dryopteris 'Plumosa'
Hypodematium crenatum
Hypolepis rufobarbata
Lepisorus thunbergianus
Leptopteris hymenophylloides
Leptorumohra miqueliana
Lycopodium clavatum
Lycopodium complanatum
Lygodium palmatum
Notholaena marantae
Oreopteris quelpaertensis
Pellaea andromedifolia
Pellaea glabella
Pellaea sagittata
Phyllitis hybrida
Phyllitis scolopendrium
Phyllitis scolopendrium 'Cristata'
Phyllitis scolopendrium 'Ramocristatum'
Polypodium vulgare 'Grandiceps'
Polypodium vulgare 'Macrostachyon'
Polypodium vulgare 'Omnilacerum'
Polypodium californicum
Polypodium glycyrrhiza
Polypodium vulgare 'Rothmales'
Polystichum acrostichoides 'Cristata'
Polystichum acrostichoides 'Incisum'
Polystichum californicum
Polystichum imbricans
Polystichum scopulinum
Polystichum setiferum "A very fine form"
Polystichum setiferum 'Cristatum'
Polystichum setiferum 'Grandiceps'
Polystichum setiferum 'Herrenhausen'
Polystichum setiferum 'Laxum'
Polystichum setiferum 'Lineare'
Polystichum setiferum 'Revolvens'
Polystichum setiferum 'Rotundatum Cristatum'
Polystichum setiferum Wales
Polystichum setiferum Wild Species
Polystichum tagawanum
Pteridium aquilinum var. pubescens
Pteridium aquiliuum var. aquilinum
Pteridium esculentum
Pteridum aquilinum
Pyrrosia lingua
Pyrrosia serpens
Thelypteris palustris 'Cristata'
Woodsia ilvensis
Woodwardia areolata
Woodwardia orientalis
Woodwardia virginica

Hardy Fern Foundation Plant Sale Distribution 1994

The HFF has a limited supply of the following ferns available at $5.00 apiece for fall 1994:

Adiantum capillus - veneris: Delicate maidenhair, deciduous, moist shade, 1'; Zone 7

Athyrium filix - femina 'Vernoniae Cristatum': Tall, deciduous unusual crested Lady Fern; Zone 4

Cyrtomium caryotideum: Evergreen to 1', matte light green large holly like pinnae: Zone 7

Dryopteris dilatata 'Lepidota Cristata': Beautiful lacy evergreen, open growth to 18"; Zone 4 .

Dryopteris filix - mas 'Linearis Polydactyla' Lightweight tall evergreen, 2', unusual; Zone 5

Dryopteris scottii: Newly available sub-evergreen from Asia, resembles *D. cycadina*, Zone 8

Phyllitis scolopendrium 'Kaye's Lacerate': Low growing lime lover, shredded foliage; Zone 5

Polystichum makinoi: Handsome toothy Japanese evergreen, glossy 2' fronds; Zone 6

Polystichum setiferum 'Congestum cristatum': Dense low mound of evergreen foliage; Zone 6

Please note: *All temperatures are approximate and tend to be on the conservative side.*

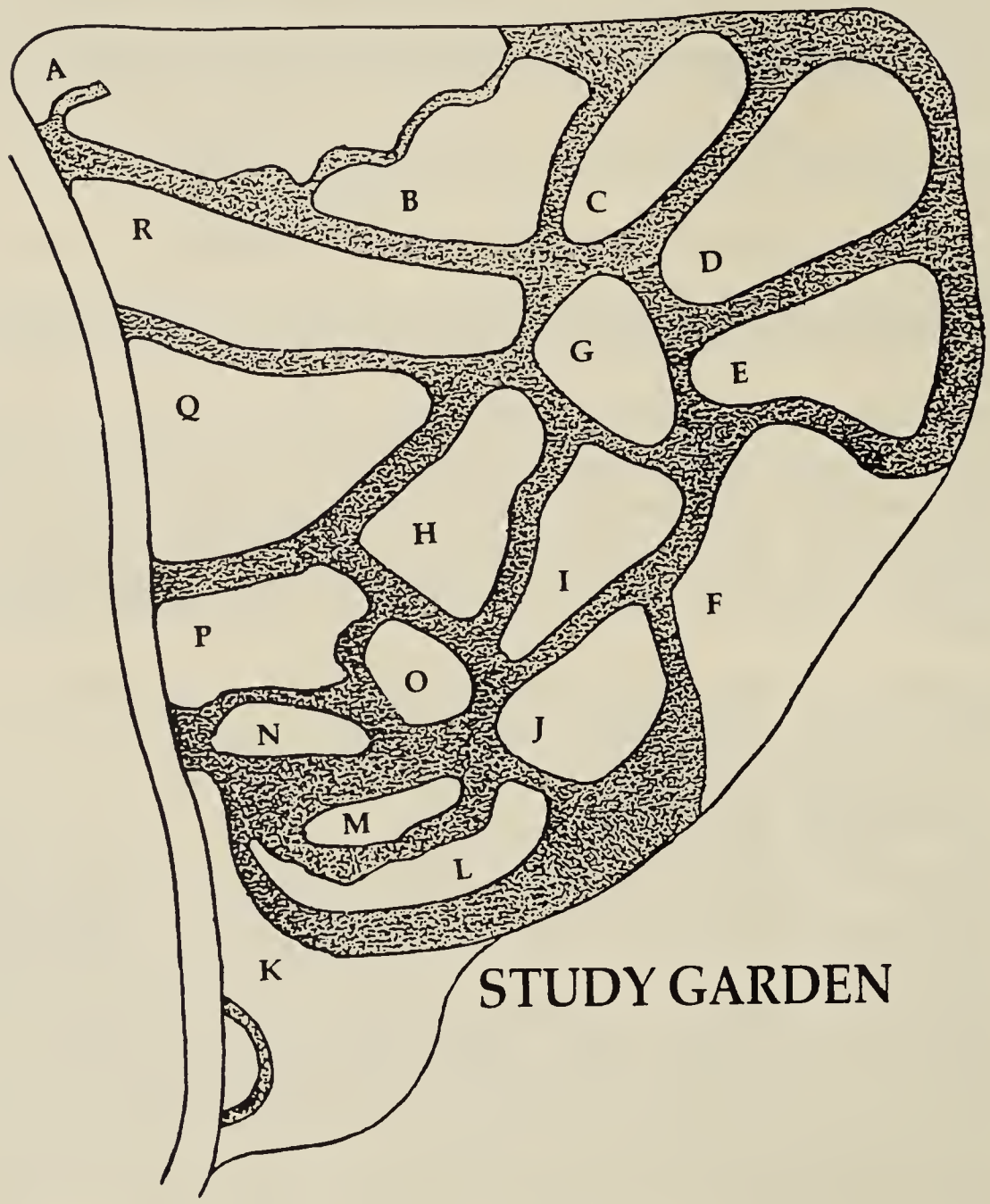
Ordering Instructions

Please send your order to Suzanne Hattery, 25519 140th Lane S.E., Vashon Island, WA 98070 to arrive **NO LATER THAN SEPTEMBER 6, 1994.** As plants are subject to availability, please do not send money with your order. You will be billed at pick up or with shipment. The invoice will indicate the plant total, any handling charge, any tax and shipping charges. Plants will be available at the HFF picnic, September 20 or will be shipped UPS during the week of September 12. Plants will be shipped UPS 2nd day air east of the Rocky Mts., and surface on the Pacific coast. Please note that UPS cannot deliver to a PO Box, so please indicate your delivery address on the order.

Ogden, Edith Bolan. 1948 The Ferns of Maine. Orono, Maine; University of Maine at Orono Press should be added as a reference in the Contest/Contest article by Catharine Guiles in the Spring 1994 Newsletter.

The Hardy Fern Foundation Primary Fern Garden
May 1994

The Study garden is located at the Rhododendron Species Botanical Garden Federal Way, Washington.



NEILL D. HALL

1899 - 1994

We are sorry to report that Neill Hall died in Seattle, WA. on July 12. Neill served enthusiastically for many years as the Curator of the Spore Exchange for the American Fern Society and was an inspirartion to us all. He was featured as a 'Great Fernist' in our Summer 1993 Newsletter. He will be greatly missed by his many friends in the Seattle area as well as his colleagues from around the world. Thanks Neill from all of us.

In the Study Garden at this time . . .

A
Polystichum acrostichoides 90/145
Blechnum spicant 90/282
Blechnum spicant 'Serratum Rickard'
Polystichum californicum 91/044
Polystichum makinoi 91/045
Polystichum neo-lobatum 91/046

B
Polystichum rigens acc. no?
Polystichum tripteron 90/306
Polystichum tsus-simense 90/163
Polystichum braunii 90/164
Polystichum retroso-paleaceum 90/313
Polystichum polyblepharum 90/165
Polystichum squarrosum 90/312
Polystichum yaemonse 90/166
Blechnum spicant (moved from RSF)

C
NOTHING

D
Dryopteris wallichiana 90/138
Dryopteris sieboldii 90/293
Dryopteris formosana 91/050
Dryopteris lacera 90/311
Dryopteris lepidopoda (new acc.)
Dryopteris polyepis 90/308
Dryopteris championii 90/303
Dryopteris darjeelingensis (new acc.)
Dryopteris scottii (new acc.)

E
Dryopteris aemula 90/296
Dryopteris dilitata 90/294
Dryopteris remota 91/043

F
Athyrium filix-femina 'Minutissimum' 90/290
Dryopteris pseudo-filix-mas 90/161
Dryopteris clintoniana x goldiana 90/375
Dryopteris ludoviciana 90/160
Dryopteris filix-mas (male 90/324,90/159

G
Dryopteris dilatata 90/294
Dryopteris dilatata 'Recurvata' 90/139
Dryopteris filix-mas 'Undulata Robusta' 90/136
Dryopteris oreades (new acc.)
Dryopteris dilatata 'Lepidota Cristata' 90//373
Dryopteris filix-mas 'Linearis Polydactyla' 90/135

H
Asplenium trichomanes var. incisum 91/038
Adiantum pedatum 90/322
Adiantum viride-montanum 90/323
Adiantum venustum 90/150 & 90/149 (big patch)

I
Athyrium filix-femina var. bornholmiense 90/151
Athyrium filix-femina var. angustum 90/154
Lunathyrium thelypteriodes 90/153

J\
Phegopteris decursive-pinnata 90/128
Phegopteris connectilis 90/155
Athyrium vidalii 90/133
Athyrium niponicum 90/291
Athyrium niponicum var. pictum 90/132
Gymnocarpium dryopteris 90/130
Gymnocarpium dryopteris 'Plumosa' 90/131
Athryium mesoserum 90/314
Athyrium otophorum 90/129

K\
Dryopteris cystolepidota (new acc.)
Dryopteris varia var. setosa 90/127
Dryopteris bissetiana?
Dryopteris erythrosora var. prolifica 90/297 & 91/042
Dryopteris erythrosora 90/126

L\
Matteuccia struthiopteris 90/292

M,N,O, - NOTHING

P\
88/101

Q\
Arachnioides simplicior x major 90/147
Crytomium lonchitoides (new acc.)
Crytomium macrophyllum 90/285
Crytomium fortunei var. intermedium 90/286
Crytomium caryotideum x falcatum 90/146
Crytomium caryotideum 91/040
Blechnum penna-marina 093/93

R\
Polystichum x illyricum 90/304
Polystichum aculeatum 90/305
Blechnum penna-marina 093/93
Polystichum setiferum 'Plumoso-Divisilobum' 90/141
Polystichum setiferum 'Congestum' 90/143
Polystichum setiferum 'Divisilobum' 90/142
Polystichum setiferum 'Rotundatum Cristatum' 90/284
Polystichum setiferum Thompsonii 90/140

Alpine Garden
Cheilanthes lanosa 91/039
Polystichum scopulinum 91/048
Polystichum californicum 90/326
Woodsia obtusa 90/310
Cryptogramma crispa
Adiantum aleuticum 'Subpumilum'

Pond Garden
Woodwardia areolata 90/167
Osmunda cinnamomea
Osmunda claytoniana 90/302
Osumnda regalis
Polystichum polyblepharum?

Road between LSG and Pond
Adiantum aleuticum 'Subpumilum'

Ferns in Alpine Greece

Dr. Nickolas Nickou, Branford, CT

In mid July of '93 I spent two weeks scrambling over the seven and eight thousand foot mountains of the southern Greek mainland....several days at Delphi to explore Mt. Parnassos and Mt. Giona and the remainder in the southern Pindus range which extends north to the Albanian border. The trip was sponsored by the Alpine Garden Society (AGS) of England and lead by the most competent John Richards, author of the newest and most thorough treatment of the genus Primula.

Ceterach officinarum

Several of the participants were butterfly enthusiasts and 97 species were seen as well as 65 species of birds. The raptors were particularly exciting and three species of eagles came quite close and were easily identified.

As a group our chief goal was to find the high altitude plants for which the area is noted. In particular we expected several species of Dianthus, Campanula and Saxifraga as well as many others. Some of the choicer items we found were *Edrianthus graminifolius, Asperula boisseri, Campanula rupicola* and *C. radicosa.* Other well known favorites were *Daphne oleoides, D. jasminea* and great clumps of *Acantholimon echinus* in full bloom....one of the treasures of the trip.

The mountains were predominently limestone with some sandstone and conglomerate. There is little or no rain from May to September but in higher areas where it is cooler and evaporation isn't so fierce, ferns are to be found.

On limestone walls and cliffs but not in full sun were the common *Ceterach officinarum* and *Asplenium ruta-muraria.* The former was curled up so that the undersides of the fronds were showing...resembling numerous brown puppy dog tails. In shady areas with greater humidity was *Asplenium trichomanes* ssp *quadrivalens* - a new one for me. On shady wet seeps was the beautiful *Adiantum capillus-veneris.*

At lower elevations and near the few streams were *Polystichum lonchitis, P. aculeatum* and *P. setiferum* in addition to *Athyrium filix-femina, Dryopteris filix-mas* and the ubiquitous *Pteridium aquilinum.* The cosmopolitan *Cystopteris fragilis* was very common on the cliffs near streams.

We saw a total of 718 species of plants but for the first time visitor and to see the glorious flower show of Mediterranean species it is best to visit in mid April. At that time and in southern Greece and Crete, many of the bulbous plants are in bloom as well as orchids, many interesting trees and shrubs and early perennials. Still better, there are very few tourists around. I recommend the paperback Flowers of Greece and the Balkans by Oleg Polanin. There are more thorough books for the advanced enthusiast or the very adequate and simpler guide Flowers of Greece by Huxley and Taylor.

Asplenium ruta-muraria

CALENDAR

San Diego Fern Society Fern Show
Casa del Prado, Balboa Park
August 20 Noon - 5:00 PM
August 21 10:00 - 5:00 PM
Plant Sale both days 10:00 AM - 5:00 PM

Los Angeles Internation Fern Society
LA County Arboretum
Plant Sale and Show
September 3, 4 & 5
9:00 AM - 4:30 PM

Hardy Fern Foundation
Picnic and Field Trip
Belfair State Park, Kitsap County, WA
September 20
Noon

Northwest Horticultural Society
Center for Urban Horticulture, Seattle, WA
Fall Plant Sale
September 23 & 24

PTERIDOPHYTE 1995 SYMPOSIUM '95

The Royal Botanic Gardens, Kew, UK
Pteridophyte Symposium '95
July 17 - 21

Post Symposium Tour Devon and Cornwall
July 23 - 30

"This international symposium commemorates Professor R. E. Holttum who was pre-eminent among the pteridologists of the 20th Century. It will address all aspects of pteridology."

The Post Symposium tour will be led by Dr. Chris Page of the Edinburgh Botanic Garden. Chris is an outstanding pteridologist and naturalist and I'm certain the tour will be exceptional. Be advised there is space for only 22 so reservations should be made early. Inquiries should be directed to Miss Jennifer Ide, c/o Robert Johns, The Herbarium, The Royal Botanic Gardens, Kew, Richmond, Surrey, TW9 3AE UK

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